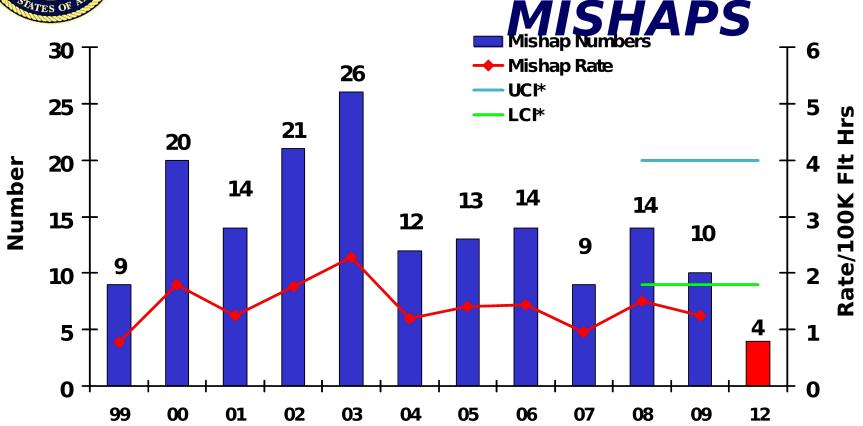


### **CLASS A FLIGHT**



**12 Aug 08** 

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 10 / 1.24

14 / 1.73

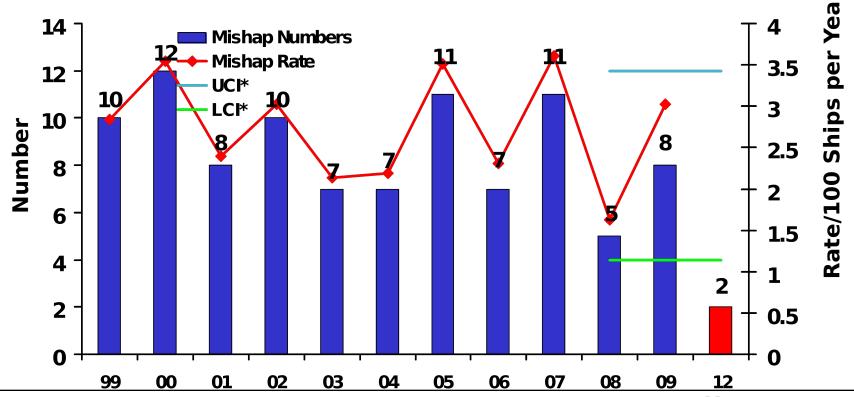
FY08 MISHAPS/MISHAP RATE: 14 / 1.50

12<sup>M</sup> Aug 09

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 15.2 / 1.45



# CLASS A AFLOAT MISHAPS



12 AUG<sup>x</sup>09 12

4 /

**Aug 08** 

**CLASS A MISHAPS/MISHAP RATE FY COMPARISON:** 8 / 3.02

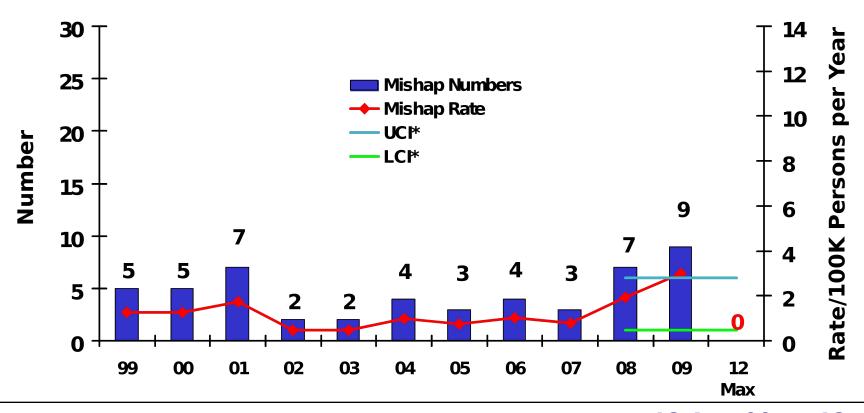
1.51 FY08 MISHAPS/MISHAP

**RATE:** 5 / 1.63

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 8.8 / 2.73



### 5S A SHORE ON-DUTY MISHAPS



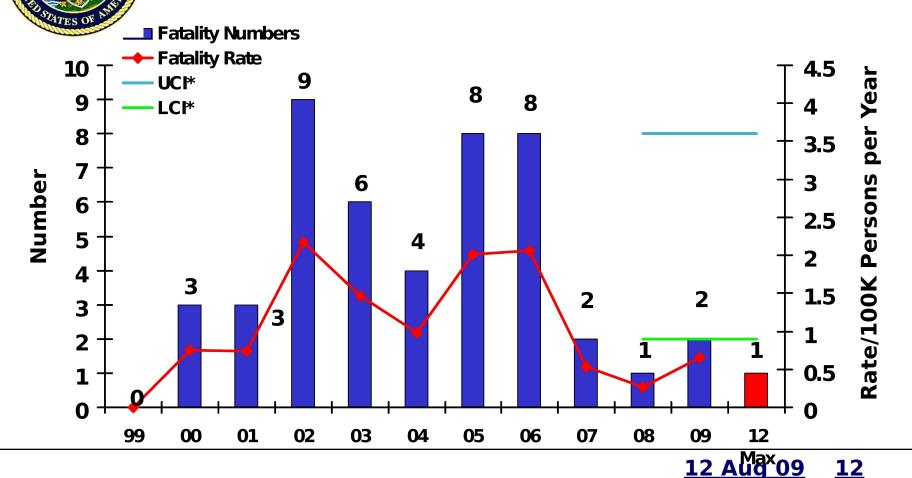
<u>12 Aug 09</u> <u>12</u> <u>Aug 08</u>

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 9 / 2.99 6 / 1.90

FY08 MISHAPS/MISHAP RATE: 7 / 1.92

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 4.2 / 1.06

# SICAL TRAINING FATALITIES



**Aug 08 FATALITIES/FATALITY RATE FY COMPARISON:** 1 / 2 / 0.66

0.32

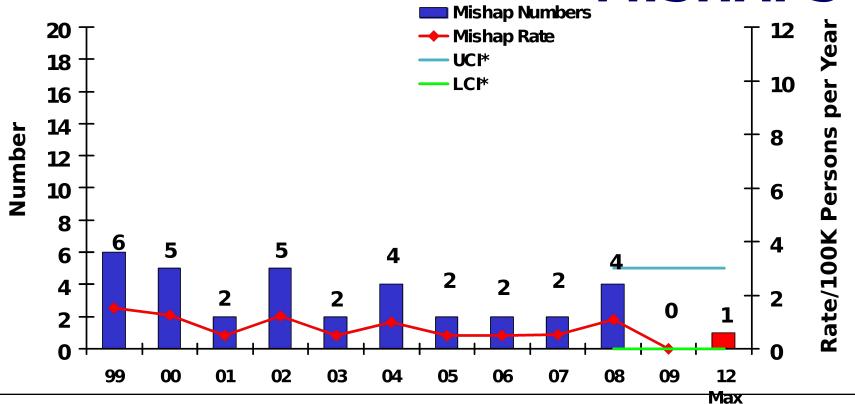
FY08 FATALITIES/FATALITY RATE: 1 / 0.27

10 YEAR AVERAGE (FY92 08) FATALITIES/FATALITY RATE:

4.4 / 1.11



# CLASS A ON-DUTY MV MISHAPS



12 Aug 09 12
Aug 08
CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 0 / 0.00 4 /

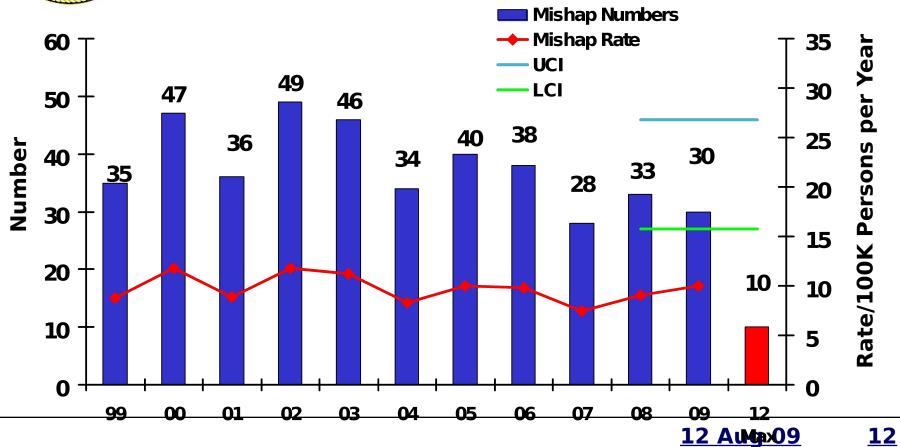
1.27 FY08

MISHAPS/MISHAP RATE: 4 / 1.10

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 3.4 / 0.86



### AL CLASS A ON-DUTY MISHAPS



**Aug 08** 

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 30 / 9.96

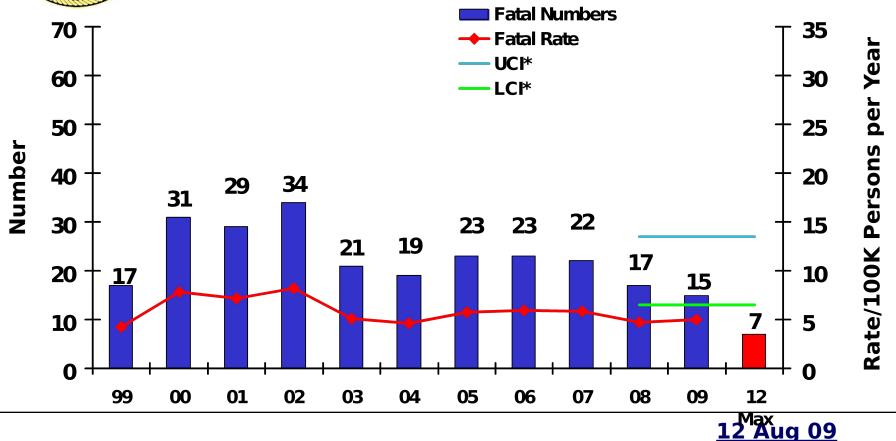
31 / 9.83

FY08 MISHAPS/MISHAP RATE: 33 / 9.06

\*see last since to Adeninition of USI/28108) MISHAPS/MISHAP RATE: 38.6 / 9.75



### **ON-DUTY FATALITIES**



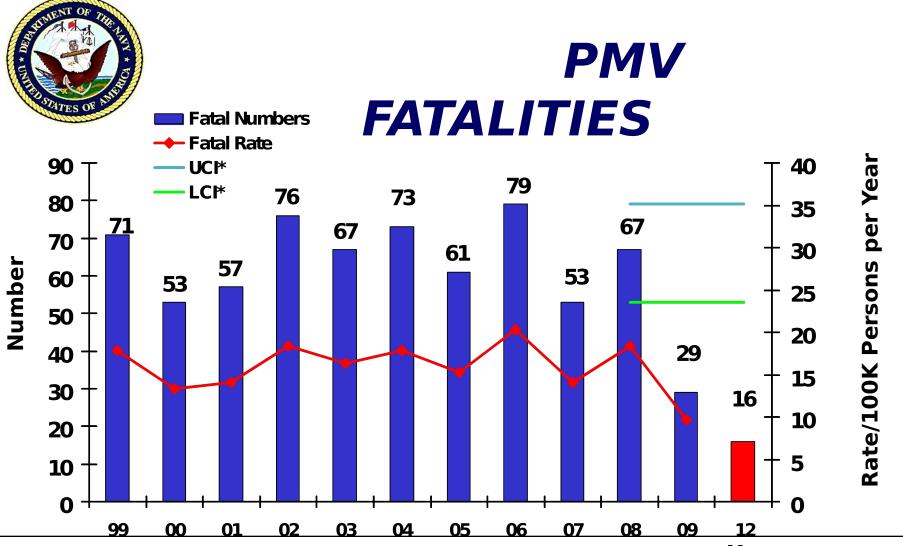
12 Aug 08

FATALITIES/FATALITY RATE FY COMPARISON: 15 / 4.98 15

/ 4.76 FY08 FATALITIES/FATALITY

**RATE:** 17 / 4.67

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 23.6 / 5.96



12<sup>M</sup>Aug 09 12

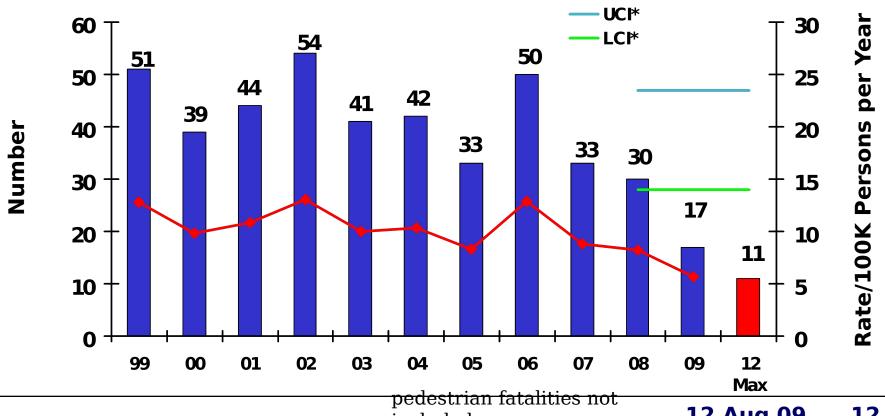
Aug 08
CLASS A FATALITIES/FATALITY RATE FY COMPARISON: 29 / 9.63
56 / 17.76

FY08 FATALITIES/FATALITY RATE: 67 / 18.39 RAYERAGE (FY99/08) FATALITIES/FATALITY RATE: 65.7 / 16.60



### 4-WHEEL PMV

### FATALLITIES



included 12 Aug 09 12

<u>Aug 08</u>

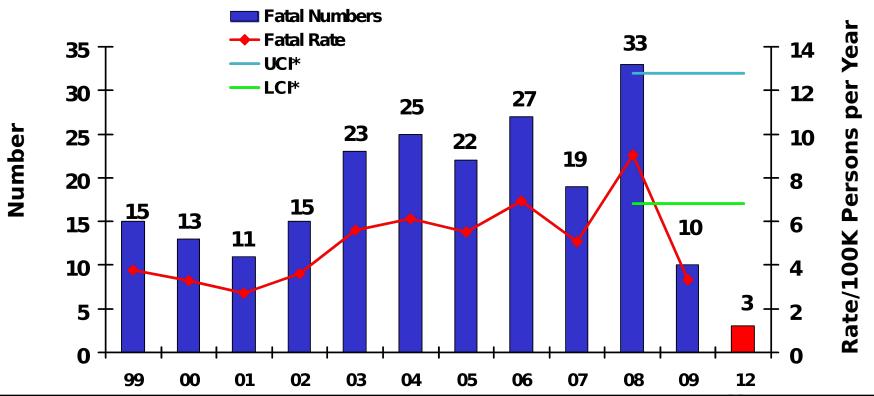
CLASS A FATALITIES/FATALITY RATE FY COMPARISON: 17 / 5.64

29 / 9.20

FY08 FATALITIES/FATALITY RATE: 30 / 8.24

10 YEAR AVERAGE (FY92 08) FATALITIES FATALITY RATE: 41.7 / 10.53

# DTORCYCLE PMV FATALITIES



12 Aug 09 **12** 

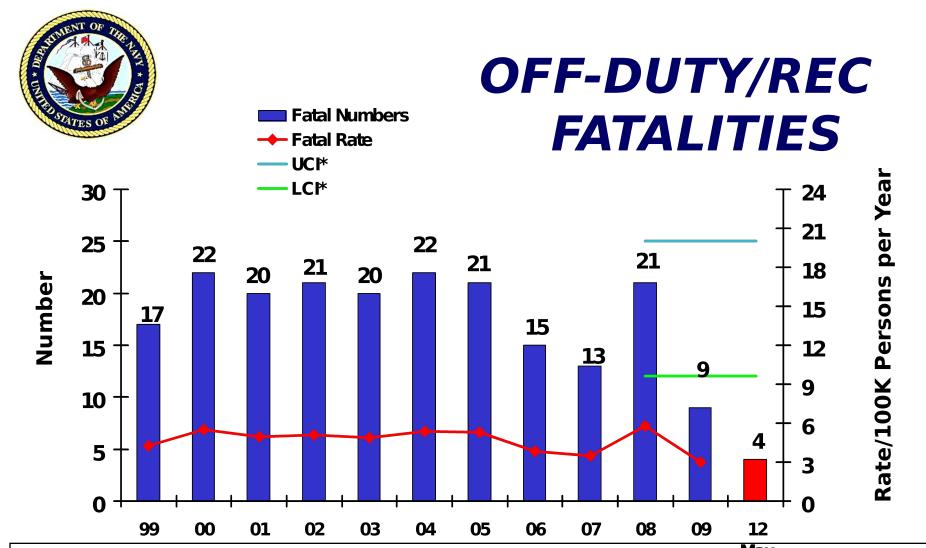
**Aug 08** 

**CLASS A FATALITIES/FATALITY RATE FY COMPARISON:** 10 / 3.32 24 /

7.61 **FY08** 

**FATALITIES/FATALITY RATE:** 33 / 9.06

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 20.3 / 5.13



1<sup>Max</sup>Aug 09 12

**Aug 08** 

CLASS A FATALITIES/FATALITY RATE FY COMPARISON: 9 / 2.99 18 /

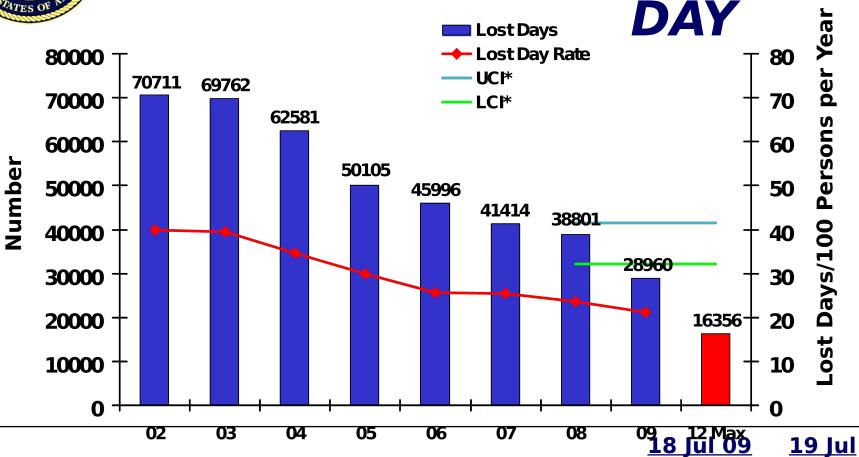
5.71 FY08 FATALITIES/FATALITY

**RATE:** 21 / 5.77

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 19.2 / 4.85



### CIVILIAN LOST WORK



80

LOST WORK DAY FY RATE COMPARISON: 21.20

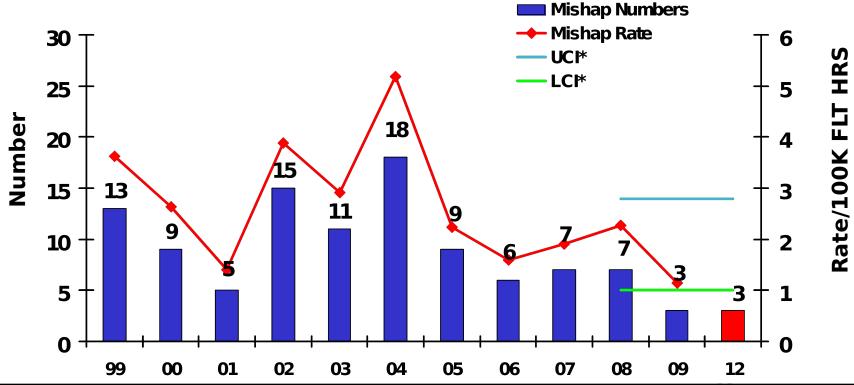
25.36

FY08 LOST WORK DAY RATE: 23.62

5-YEAR AVERAGE (FY04-08) LOST WORK DAY RATE: 28.20



# CLASS A FLIGHT MISHAPS



12 Aug 09 12

**Aug 08** 

CLASS A FM/FM RATE FY COMPARISON: 3 / 1.15

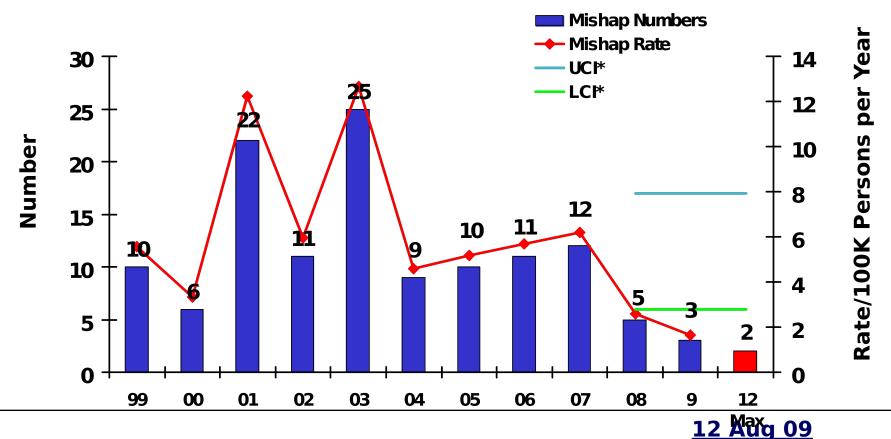
6 / 2.20

FY08 MISHAPS/MISHAP RATE: 7 / 2.28

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 10 / 2.76



### ASS A GROUND ON-DUTY MISHAPS



**12 Aug 08** 

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 3 / 1.64

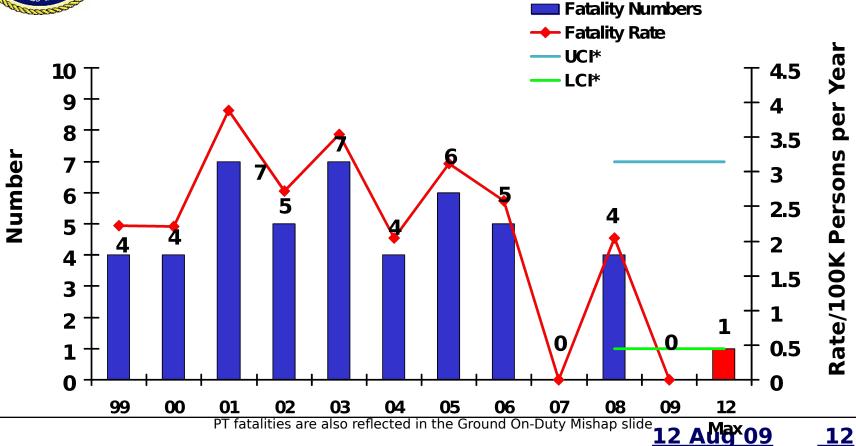
5 / 2.97 FY08 MISHAPS/MISHAP

**RATE:** 5 / 2.57

\*see 10-YEAR AVERAGE (FY99 08) MISHAPS / MISHAP RATE: 12.1 / 6.39



### SICAL TRAINING FATALITIES



**Aug 08** 

**FATALITIES/FATALITY RATE FY COMPARISON:** 0 / 0.00 4 /

2.37

**FY08 FATALITIES/FATALITY RATE:** 4 / 2.05

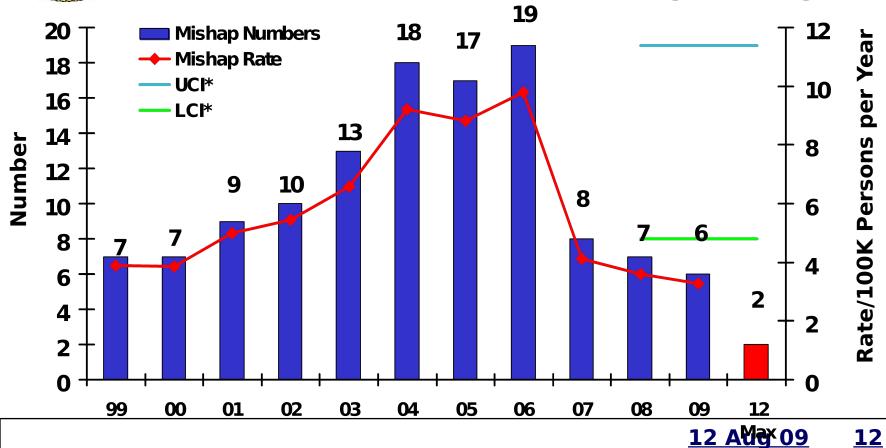
10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: \*see last slide for definition of UCI/LCI

4.6 / 2.43

12



### CLASS A ON-DUTY MV MISHAPS



**Aug 08** 

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 6 / 3.28 7 /

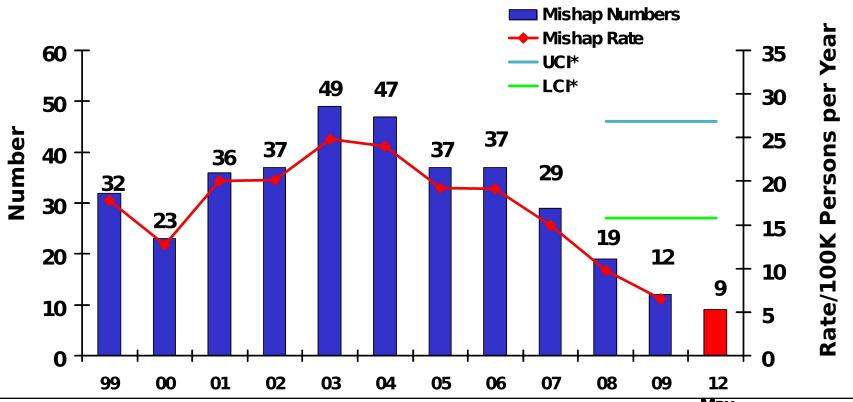
4.15

FY08 MISHAPS/MISHAP RATE: 7 / 3.60

\*see labosYEEARrAVEERAGE (JCY/09-08) MISHAPS/MISHAP RATE: 11.5 / 6.08



### TAL CLASS A ON-DUTY MISHAPS



12 Aug 09 12

**Aug 08** 

CLASS A MISHAPS/MISHAP RATE FY COMPARISON: 12 / 6.55

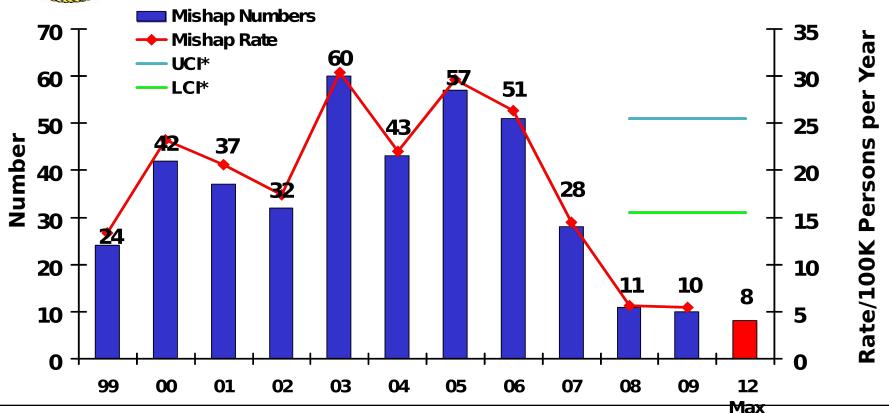
18 / 10.68

FY08 MISHAPS/MISHAP RATE: 19 / 9.76

10-YEAR AVERAGE (FY99-08) MISHAPS/MISHAP RATE: 34.6 / 18.28



### **ON-DUTY FATALITIES**



12 Aug 08

CLASS A FATALITIES/FATALITY RATE FY COMPARISON: 10 / 5.46

11 / 6.53 FY08 FATALITIES/FATALITY

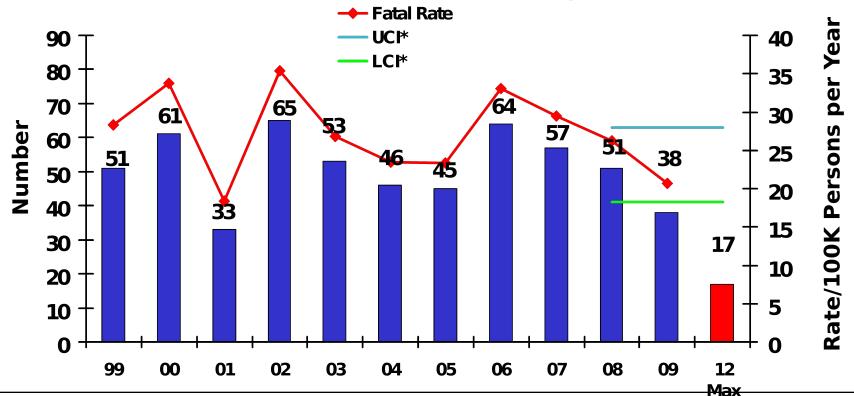
12 Aug 09

**RATE:** 11 / 5.65

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 38.5 / 20.34



# PMV Tagander TES



**12 Aug 09** 

**12** 

**Aug 08** 

**CLASS A FATALITIES/FATALITY RATE FY COMPARISON:** 38 / 20.75

44 / 26.11

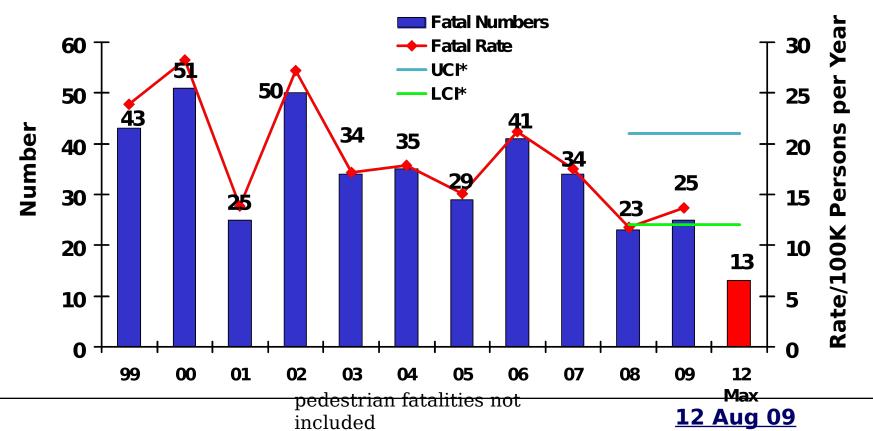
**FY08 FATALITIES/FATALITY** 

RATE: 51 / 26.19

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 52.6 / 27.79
\*see last slide for definition of UCI/LCI



# 4-WHEEL PMV FATALITIES



12 Aug 08

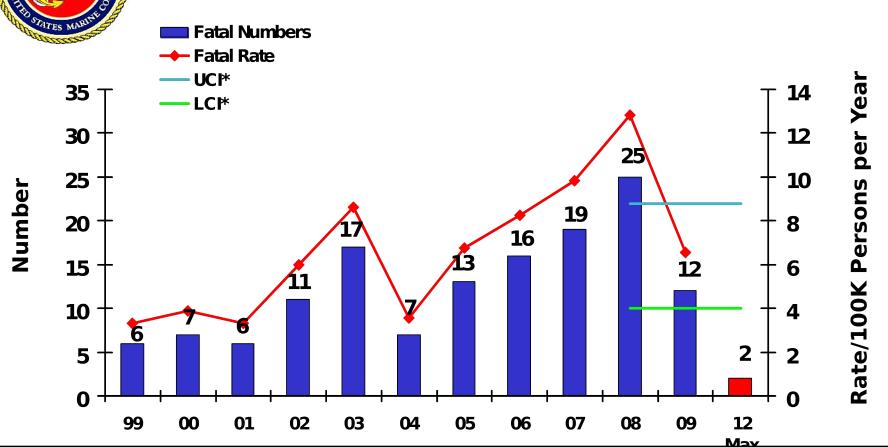
CLASS A FATALITIES/FATALITY RATE FY COMPARISON: 25 / 13.65

20 / 11.87 FY08

**FATALITIES/FATALITY RATE:** 23 / 11.81

10 YEAR AVERAGE (FY99/28) FATALITIES/FATALITY RATE: 36.5 / 19.29

# OTORCYCLE PMV FATALITIES

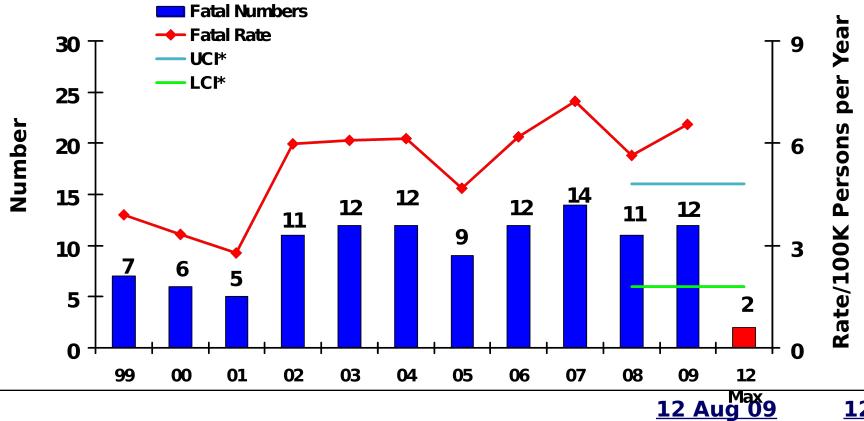


	12 Aug 09	<u>12</u>
Aug 08	_	
CLASS A FATALITIES/FATALITY RATE FY COMPARISON:	12 / 6.55	22
/ <b>13.05</b>	FY08	
FATALITIES/FATALITY RATE: 25 / 12.84		

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE:
\*see last slide for definition of UCI/LCI 12.7 / 6.71



# OFF-DUTY/REC **FATALITIES**



**Aug 08** 

**CLASS A FATALITIES/FATALITY RATE FY COMPARISON:** 12 / 6.55 10

**/ 5.93** FY08 FATALITIES/FATALITY

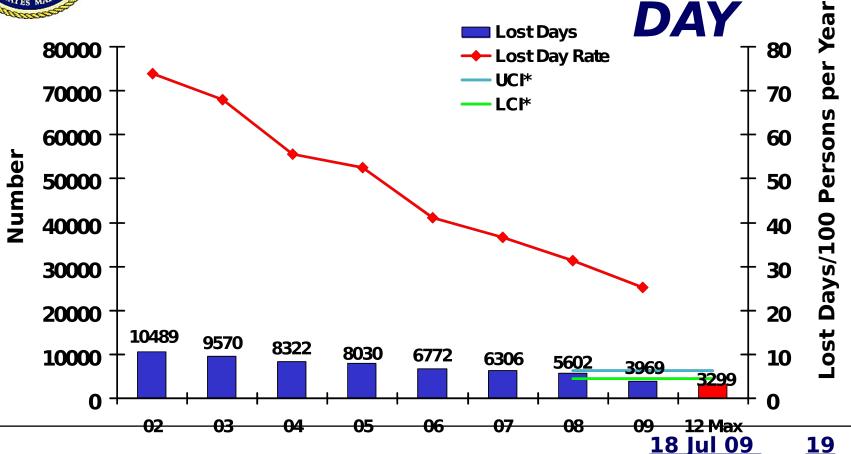
RATE: 11 / 5.65

10-YEAR AVERAGE (FY99-08) FATALITIES/FATALITY RATE: 9.9 / 5.23

**12** 



### CIVILIAN LOST WORK



LOST WORK DAY FY RATE COMPARISON: 25.29

Jul 08 33.63

FY08 LOST WORK DAY RATE: 31.34

5-YEAR AVERAGE (FY04-08) LOST WORK DAY RATE: 42.45

#### red indicates OIF/OEF mishap

#### USN AVIATION CLASS A MISHAPS (includes FRMs not included in the Flight Slide)

- 07 Aug 09 F/A-18A+ had dual bleed air warning light indications in flight with damage to fire walls. Aircraft landed safely with no aircrew injuries.
- 21 Jul 09 HH-60H struck the ground. Minor injuries.
- 08 Jun 09 F/A-18E right main landing gear collapsed during arrested landing rollout at NAF.
- 19 May 09 HH-60H crashed in the water. 5 fatalities.
- 19 Mar 09 E-2 blew tire and departed runway on landing.
- 10 Feb 09 MH-60S sustained a hard landing.
- 02 Feb 09 Midair collision between two F/A-18 aircraft. Both aircraft recovered safely aboard ship.
- 17 Nov 08 EA-18G left engine fire during flight.
- 20 Oct 08 P-3C departed runway after landing. No injuries.
- 04 Oct 08 F/A-18F struck a Sailor on flight deck during catapult launch. 1 fatality. (FLT REL)
- 04 Oct 08 Helicopter struck tailboom of lead helicopter during landing resulting in hard landing and rollover. 1 non-DOD fatality.

#### USN AFLOAT CLASS A MISHAPS

- 08 Jul 09 E-6 died when he fell overboard while rigging shore power cables prior to entering port.
- 07 May 09 E-7 died during dive training evolution.
- 24 Apr 09 E-4 died while performing ship maintenance.
- 20 Mar 09 Sub and amphib collided.
- 05 Feb 09 CG ran aground while conducting small boat transfer.
- 04 Feb 09 SVCMN lost at sea when RHIB flipped while being lowered into the water when tending line became hooked on crane cable. 2 of 3 Sailors safely recovered.
- 24 Nov 08 Sonar dome rubber window (SDRW) damaged requiring drydock.
- 04 Oct 08 Teeth bent in main reduction gear during PMS.

#### ■ USN SHORE CLASS A MISHAPS

- 29 Jun 09 (Kings Bay, GA) Indoor Firing Range suffered structural damage due to a fire.
- 22 Jun 09 (Kings Bay, GA) REFIT facility damaged by heavy weather.
- 18 Jun 09 (Yuma, AZ) E-6 died during night MFF Jump Master course.

#### red indicates OIF/OEF mishap

#### USN SHORE CLASS A MISHAPS (con't)

- 03 Jun 09 (Coronado, CA) DON civilian died after falling approximately 30 feet while assisting with an HVAC repair.
- 28 Apr 09 (Solomon's Island, MD) Pier and ship damaged by fire.
- 17 Feb 09 (Ft. Jackson, SC) 0-5 died in a training mishap.
- 22 Jan 09 (San Clemente Island, CA) Two buildings and all contents destroyed by fire.
- 25 Dec 08 (Bahrain) Navy RHIB collided with a moored barge resulting in 1 fatality and 2 injuries.
- 09 Nov 08 (Pearl City, HI) Advanced Seal Delivery System (ASDS) damaged by fire.

#### USN PHYSICAL TRAINING CLASS A MISHAPS

- 27 Apr 09 (Mayport, FL) E-5 collapsed and died during command sponsored PT.
- 30 Jan 09 (Naples, IT) O-6 died shortly after complaining of stomach pain during semi-annual PRT.

#### USN ON-DUTY MOTOR VEHICLE CLASS A

No events this FY.

#### ■ USN PRIVATE MOTOR VEHICLE FATALITIES

- 08 Aug 09 (Norfolk, VA) E-5 died in a single motorcycle mishap.
- 06 Aug 09 (Bethesda, MD) Foreign Exchange Officer, O-4 struck and killed by a car while crossing the street.
- 26 Jul 09 (Tallulah, LA) E-6 died in a multiple vehicle mishap.
- 25 Jul 09 (Norfolk, VA) E-5 died in a single vehicle mishap. SNM was a passenger.
- 18 Jul 09 (Monterey, CA) E-4 died when the motorcycle on which she was a passenger struck a motor home.
- 05 July 09 (Augusta, ME) E-6 died in a motorcycle mishap after striking oncoming vehicle while participating in a group ride.
- 04 July 09 (Quincy, MA) E-3 died after running a red light causing a multiple vehicle mishap in which both front seat occupants were ejected.
- 26 Jun 09 (Virginia Beach, VA) E-5 died in single vehicle mishap when automobile flipped and SNM was ejected.
- 24 Jun 09 (Chula Vista, CA) E-4 died in a single vehicle mishap.
- 20 Jun 09 (Virginia Beach, VA) E-6 died in a motorcycle mishap.
- 15 Jun 09 (Fresno, CA) E-3 died in a single vehicle mishap.
- 22 May 09 (I-5 near Camp Pendelton) E-3 died in single vehicle mishap.

#### red indicates OIF/OEF mishap

#### ■ USN PRIVATE MOTOR VEHICLE FATALITIES (con't)

- 09 May 09 (Lee, NH) E-5 died in an automobile mishap when an oncoming vehicle crossed centerline and struck head-on.
- 05 May 09 (Torrance, CA) E-6 died in single vehicle rollover.
- 26 Apr 09 (Kettleman, CA) E-4 died in an automobile mishap when she was struck head-on by another vehicle.
- 23 Apr 09 (Green River, UT) E-5 died in automobile mishap when he collided with a tractor trailer.
- 03 Apr 09 (Norfolk, VA) O-1 died in a motorcycle mishap.
- 14 Mar 09 (Salerno, IT) E-5 died in a motorcycle mishap.
- 07 Mar 09 (Norfolk, VA) E-4 died when his motorcycle struck another vehicle.
- 02 Feb 09 (Tulare County, CA) E-4 died when his car was struck by a drunk driver traveling northbound in southbound lane.
- 01 Feb 09 (San Bernardino, CA) E-4 died when his car was struck from behind and caught fire.
- 10 Jan 09 (Ojai, CA) E-6 died in a motorcycle mishap when he drifted over the center line and collided with an oncoming vehicle during a group ride.
- 03 Jan 09 (Lafayette, LA) E-3 died when his vehicle rolled over into water and submerged.
- 07 Dec 08 (San Diego, CA) E-4 died when his vehicle departed the roadway while negotiating an interstate onramp. Alcohol was a factor.
- 15 Nov 08 (Nassau, FL) E-4 died when the vehicle in which he was a passenger veered into the median barrier and he was ejected from the vehicle.
- 08 Nov 08 (Big Bear, CA) CW05 on terminal leave died when his cruiser motorcycle drifted into oncoming traffic while rounding a curve.
- 10 Oct 08 (Boron, CA) E-4 died in an automobile mishap when he swerved into oncoming traffic and collided head-on with another vehicle.
- 05 Oct 08 (Spring View, CA) E-5 died from injuries sustained in a motorcycle mishap.
- 01 Oct 08 (Kleberg County, TX) O-2 died when he was struck by an automobile while riding his bicycle.

#### USN OFF-DUTY/RECREATIONAL FATALITIES

- 08 Aug 09 (Kentucky) E-3 drowned after diving into the water and failed to resurface.
- 01 Aug 09 (Kingsland, GA) E-5 drowned after falling out of a small pleasure craft.
- 28 Jun 09 (Lake Luzerne, NY) E-4 died in a recreational swimming mishap.

#### red indicates OIF/OEF mishap

#### USN OFF-DUTY/RECREATIONAL FATALITIES (con't)

- 22 May 09 (Fallon, NV) O-5 died in civilian light airplane crash.
- 04 Jan 09 (Gaeta, IT) E-6 died from accidental carbon monoxide poisoning.
- 01 Jan 09 (Lakeside, CA) E-7 died from hypothermia.
- 28 Dec 08 (Lombard, IL) E-2 died after being hit by freight train while walking on tracks.
- 27 Dec 08 (Grand Bland, MI) E-2 died after being found unresponsive after a night of drinking.
- 23 Dec 08 (Pace, FL) O-6 died from fall while trimming a tree.

### Marine Corps Short Narratives

#### red indicates OIF/OEF mishap

- USMC AVIATION CLASS A MISHAPS (includes AGMs not included in the Flight Slide)
- 05 May 09 AH-1W crashed with fatalities.
- 29 Dec 08 AV-8B crashed on PAR final approach, pilot died.
- 08 Dec 08 F/A-18D crashed on final to homefield, pilot safely ejected.

#### USMC GROUND CLASS A

- 24 March 09 (Okinawa) E-6 died as a result of a non-combat explosive ordnance disposal operation.
- 09 Mar 09 (Iraq) E-3 died from an accidental discharge of a weapon.
- 09 Feb 09 (Camp Lejeune) E-5 died after being struck in the chest by a ricochet bullet while pulling targets at the shooting range.

#### USMC PHYSICAL TRAINING CLASS A MISHAPS

No events this FY.

#### USMC OPERATIONAL MOTOR VEHICLE

- 16 Jun 09 (Camp Lejeune, NC) E-3 died in a HMMWV mishap.
- 19 May 09 (Camp Pendleton, CA) E-4 died in a HMMWV mishap.
- 28 Feb 09 (Iraq) E-4 died from injuries after being struck by a tactical vehicle.
- 01 Dec 08 (Iraq) M1A1 tank sustained major damage when driven into wadi, dislodging gun turret.
- 23 Oct 08 (Hauula, HI) One civilian was killed when a 7-ton tactical vehicle collided head-on with civilian vehicle.
- 09 Oct 08 (Afghanistan) E-4 died in a HMMWV mishap when the vehicle rolled over while he was in the turret gunner position.

#### ■ USMC PRIVATE MOTOR VEHICLE FATALITIES

- 01 Aug 09 (San Clemente, CA) E-4 died when the vehicle in which he was a passenger struck a tree.
- 19 Jul 09 (Whittier, CA) E-5 died when the vehicle in which he was a passenger struck a tree.
- 11 Jul 09 (Zanesville, OH) E-1 died in an automobile mishap when his vehicle struck a tree.
- 05 July 09 (Palmdale, CA) E-2 died in a automobile mishap while traveling at speeds reported in excess of 100 mph.

### Marine Corps Short Narratives

#### red indicates OIF/OEF mishap

#### USMC PRIVATE MOTOR VEHICLE FATALITIES (con't)

- 13 Jun 09 (Helechawa, KY) E-1 died in a motorcycle mishap.
- 05 Jun 09 (New Bern, NC) E-4 died in single vehicle rollover.
- 31 May 09 (Jacksonville, NC) E-5 died when his vehicle overturned and he was thrown from the car.
- 17 May 09 (Jacksonville, NC) E-2 died in an automobile mishap.
- 10 May 09 (Yuma, AZ) E-1 and E-3 died and an E-2 in critical condition as a result of a single vehicle mishap.
- 05 May 09 (Jacksonville, NC) E-4 died in an automobile mishap.
- 28 Apr 09 (Yucca Valley, CA) O-4 died when his motorcycle struck a turning vehicle.
- 24 Apr 09 (Independence, MO) E-1 died when his motorcycle struck the back of a tractor trailer.
- 13 Apr 09 (Freedom Township, Blair Co, PA) E-5 died when his vehicle departed the roadway.
- 10 Apr 09 (Sneads Ferry, NC) E-6 died in motorcycle mishap when he collided head-on with another vehicle.
- 04 Apr 09 (Riverside/San Diego County Line, CA) E-3 died in a motorcycle mishap when he collided with an oncoming vehicle.
- 01 Apr 09 (Kendall County, TX) E-3 died in a single vehicle mishap.
- 28 Mar 09 (Spartanburg, SC) E-2 driver and E-3 passenger died in a single vehicle mishap.
- 24 Mar 09 (Westover, MD) E-3 died in an automobile mishap when vehicle left the road and struck a tree.
- 22 Mar 09 (Japan) E-6 died when the moped he was operating hit a curb and he was thrown from the vehicle.
- 18 Mar 09 (Marietta, GA) E-5 died when he lost control of his motorcycle.
- 16 Mar 09 (San Bernardino, CA) E-3 was in an automobile mishap and died from injuries on 11 Jul 09.
- 15 Mar 09 (Mt. Carmel, IL) E-4 died in a single vehicle automobile mishap.
- 05 Mar 09 (Reading, PA) E-6 died when his vehicle struck a utility pole.
- 14 Feb 09 (Oceanside, CA) E-4 died in a motorcycle mishap.
- 31 Jan 09 (San Diego, CA) E-3 died when her vehicle went out of control, struck a barrier and caught fire. Speed was a factor.
- 20 Jan 09 (Milton, PA) Two E-2's died and one E-2 was critically injured when their vehicle crossed over the median into oncoming traffic.
- 15 Jan 09 (Sneads Ferry, NC) E-4 died in a motorcycle mishap when he lost control of the motorcycle and collided with an oncoming vehicle.
- 13 Jan 09 (Salton City, CA) E-4 died in a motorcycle mishap when he failed to negotiate a turn and he departed the roadway.
- 27 Nov 08 (Greeleyville, SC) E-6 died when his vehicle ran off the road and he was ejected from the vehicle.

### Marine Corps Short Narratives

red indicates OIF/OEF mishap

#### USMC PRIVATE MOTOR VEHICLE FATALITIES (con't)

- 22 Nov 08 (Vista, CA) Two E-3's died in an automobile mishap when their vehicle struck a tree and caught fire.
- 08 Nov 08 (Arlington, VA) PFC died when he was struck by a vehicle while walking on a highway.
- 03 Nov 08 (Pensacola, FL) E-2 died in a motorcycle mishap when he lost control and struck a tree.
- 02 Nov 08 (Jacksonville, NC) E-3 died when the vehicle in which he was a passenger struck a parked car and flipped.
- 17 Oct 08 (Phoenix, AZ) E-7 died in a motorcycle mishap when he ran into the side of a vehicle that failed to stop at a red light.

#### ■ <u>USMC OFF-DUTY/RECREATIONAL FATALITIES</u>

- 04 July 09: (Winterhaven, CA) E-3 drowned after being caught in an undercurrent while swimming in the Colorado River.
- 27 Jun 09 (Rocky Point, NC) E-2 drowned while on camping trip.
- 14 Jun 09 (Huntington Beach, CA) E-4 died in a recreational swimming mishap.
- 03 May 09 (Cortland County, NY) E-1 found dead at a friend's home after night of drinking.
- 07 Mar 09 (Imperial Sand Dunes, CA) E-4 died in an ATV mishap.
- 14 Dec 08 (Fallbrook, CA) E-4 died from excessive consumption of alcohol.
- 23 Nov 08 (Edith Falls, Australia) E-3 died in a recreational swimming mishap.
- 11 Nov 08 (Spring Hill, FL) O-5 died in a recreational scuba diving mishap.
- 08 Nov 08 (Onna, Japan) E-4 drowned while snorkeling after experiencing rough water conditions.
- 02 Nov 08 (Phoenix, AZ) E-4 died when a shotgun accidentally discharged as he was retrieving it from his vehicle.
- 13 Oct 08 (Camp Lejeune, NC) E-2 died from excessive consumption of alcohol.
- 09 Oct 08 (Port Richie, FL) E-3 died from excessive consumption of alcohol.



### Mishap Confidence Interval



- UCI = Upper Confidence Interval
- LCI = Lower Confidence Interval
- Values above or below confidence interval infer a statistically significant change
- Values within the confidence interval infer that nothing significant has occurred to increase or decrease mishaps
- Confidence Interval is based on:
  - Cumulative Poisson distribution function
  - Calculated using FY03-08 data